

ACTUARIAL VALUATION REPORT
FOR THE
TOWN OF AMESBURY
CONTRIBUTORY RETIREMENT SYSTEM
AS OF
JANUARY 1, 2004

Prepared for: Cornelia M. Freeman
Chairperson
Amesbury Retirement System
Town Hall
62 Friend Street
Amesbury, MA 01913

November 5, 2004

John Hancock

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SUMMARY AND CERTIFICATION

This actuarial valuation report is prepared as of January 1, 2004 for the Town of Amesbury, in order to develop a funding schedule for the Retirement System for the fiscal years ending in 2006, 2007 and 2008.

This Summary presents the basic results and describes the changes from the last actuarial valuation, which was performed by John Hancock as of January 1, 2002. The exhibits which follow contain the details supporting the calculations, the basic information used and the actuarial cost method and assumptions, as well as information for disclosure under GASB Statement No. 25. At the end of the report we have included a comparative "Quick Reference" summary of principal valuation results, which includes results from the prior actuarial valuation.

Pension Appropriation

The Appropriation under the current funding schedule consists of three components: Normal Cost (for the current year of service), Amortization of the various components of the Unfunded Actuarial Accrued Liability (for amounts from prior years which are not fully funded), plus an allowance for administrative expenses. With the exception of the 2002 Early Retirement Incentive Program, the amortization payment is computed over a 20 year period and increases at 4.50% each year.

The following table shows the Appropriation. For comparison we show both the Appropriation based on this year's actuarial valuation and the Appropriation that had been anticipated based on the actuarial valuation done in 2002, which was used until now to determine the Funding Schedule. All figures are shown payable as of December 31, 2005.

Pension Appropriation for the Fiscal Year Beginning July 1, 2005 (FY 2006)

	2004 Actuarial Valuation	Projected from 2002 Valuation
Normal Cost	\$ 408,808	\$ 397,055
Amortization Cost	1,486,335	1,424,225
Allowance for Expenses	<u>121,196</u>	<u>86,204</u>
Pension Appropriation	\$ 2,016,339	\$ 1,907,484

Analysis of the Change in Appropriation Amount

The Pension Appropriation is based on a newly-adopted Funding Schedule. The appropriation for FY2006 is about \$109,000 higher than had been anticipated in the 2002 actuarial valuation. This is the result of several factors:

Actuarial Loss - Between the 2002 and 2004 actuarial valuations, experience was less favorable than anticipated, primarily due to investment return far short of the assumed 8.25%. The amortization of this loss resulted in an increase in appropriation of about \$142,000.

Expenses – The Town's estimate of the anticipated expenses for FY2006 is about \$35,000 higher than what was projected from the 2002 actuarial valuation, increasing the appropriation by that amount.

Change in Funding Schedule – The Board elected to lengthen the Funding Schedule by five years. The bulk of the Unfunded Actuarial Accrued Liability is now being amortized over the period ending June 30, 2025, increasing at 4.50% per year. This is still within the statutory deadline of June 30, 2028. The Board reserves the right to adjust the schedule in future years as long as the schedule remains within the limits of Chapter 32. The effect of this change was to decrease the Appropriation by \$309,000.

Early Retirement Incentive Programs – The Town offered early retirement incentive programs to employees in both 2002 and 2003. In total, 31 employees took advantage of the offer increasing the Actuarial Accrued Liability by a total of about \$2.6 million. This is being amortized in two pieces: the 2002 amount over 15 years, with payments increasing at 4.36% (the funding schedule in effect at the time that payments began) and the second over 20 years, with payments increasing at 4.50% (the funding schedule that is being used for this actuarial valuation). The effect was to increase the FY2006 appropriation by about \$213,000.

Normal Cost and Payroll Changes – The combined effect of an increase in total payroll and the non-investment portion of the loss increased the Normal Cost, net of employee contributions, by about \$28,000.

Actuarial Certification

The valuation was performed pursuant to Chapter 32 of the General Laws of the Commonwealth of Massachusetts. To the best of my knowledge, the information in this report and in the accompanying exhibits is complete and accurate, and in my opinion, the assumptions used in the determination of costs are reasonably related to the experience of the plan and to reasonable expectations, and represent my best estimate of anticipated long-term experience under the plan.

In my opinion, this report represents an accurate appraisal of the actuarial status of the Town of Amesbury Retirement System performed in accordance with generally accepted actuarial principles and practices relating to pension plans.

If I can be of any further assistance regarding this valuation, please do not hesitate to contact me.

Respectfully submitted,

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Exhibit I

Basic Actuarial Valuation Results

Shown below are the Actuarial Accrued Liability and Total Normal Cost for the System, calculated as of January 1, 2004. From these we compute the Unfunded Actuarial Accrued Liability (which is used to derive the amortization amounts and in Exhibit III to compute the actuarial gain or loss since the last valuation), and the Employer Normal Cost (which is a component of the Appropriation calculation, shown in Exhibit II).

Note that negative Actuarial Accrued Liability arises due to an anomaly in the funding method.

	<u>Actuarial Accrued Liability</u>	<u>Normal Cost</u>
A. Active Members		
1. Superannuation	\$17,494,838	\$ 735,722
2. Death	831,036	93,941
3. Disability	1,794,578	182,859
4. Withdrawal	<u>(711,660)</u>	<u>226,278</u>
5. Total	\$19,408,792	\$1,238,800
B. Inactive Members		
1. Retired	\$23,578,278	
2. Disabled	3,022,854	
3. Terminated Vested	1,100,210	
4. Terminated Non-vested	<u>295,358</u>	
5. Total	\$27,996,700	
C. Unfunded Actuarial Accrued Liability (UAAL) as of January 1, 2004		
1. Total Actuarial Accrued Liability (A.5 + B.5)	\$47,405,492	
2. Valuation Assets (Exhibit IV)	<u>27,735,259</u>	
3. Unfunded Actuarial Accrued Liability (C.1 - C.2)	\$19,670,233	
4. Funded Ratio (C.2 / C.1)	58.5%	
D. Employer Normal Cost		
1. Total Normal Cost as of January 1, 2004 (A.5)		\$1,238,800
2. Anticipated Member Contributions for 2004, payable throughout the year		<u>909,268</u>
3. Employer Normal Cost payable January 1, 2004 (1 - 2 / 1.04125)		\$ 365,554
4. Total Normal Cost payable January 1, 2005, (1, with a year's assumed salary increase)		\$1,297,643
5. Anticipated Member Contributions for 2005, payable throughout the year		957,941
6. Employer Normal Cost Payable January 1, 2005 (4 - 5 / 1.04125)		377,652
7. Employer Normal Cost payable December 31, 2005 (6 x 1.0825)		\$ 408,808

Exhibit I - Continued

Basic Actuarial Valuation Results

E.	Projected Unfunded Actuarial Accrued Liability as of January 1, 2005	
1.	Unfunded Actuarial Accrued Liability as of January 1, 2004	\$19,670,233
2.	Employer Normal Cost as of January 1, 2004	365,554
3.	Estimated Expenses for FY 2005	115,700
4.	Projected Pension Appropriation for FY 2005 (prior Funding Schedule)	1,885,653
5.	Projected UAAL on January 1, 2005 ((1 + 2) x 1.0825 + 3 - 4)	\$19,918,786
F.	Amortization of Unfunded Actuarial Accrued Liability	
1.	Unfunded Actuarial Accrued Liability Components	
a.	Projected UAAL on January 1, 2005 (E.5)	\$19,918,786
b.	Remaining Unfunded Balance for 2002 Early Retirement	556,977
c.	Remaining Unfunded Balance for 2003 Early Retirement	2,183,803
d.	Unfunded Actuarial Accrued Liability for all other benefits	\$17,178,006
2.	Amortization Payment as of January 1, 2005	
a.	Amortization Payment for 2002 Early Retirement (15 years, 4.36% increase)	\$ 47,379
b.	Amortization Payment for 2003 Early Retirement (20 years, 4.50% increase)	149,522
c.	Amortization Payment for all other benefits (20 years, 4.50% increase)	1,176,157
d.	Total	\$ 1,373,058
3.	Total Amortization Payment on December 31, 2005 (2.d x 1.0825)	\$ 1,486,335
G.	Pension Appropriation for FY 2006, payable December 31, 2005	
1.	Normal Cost (D.7)	\$ 408,808
2.	Estimated Expenses for FY 2006 (E.3 with a year's assumed salary increase)	121,196
3.	Amortization Payment	1,486,335
4.	Total	\$ 2,016,339

Exhibit II

Projected Pension Appropriation

This exhibit shows a projection of the components of the Pension Appropriation from the current fiscal year until the year when the Unfunded Actuarial Accrued Liability is completely amortized. All costs shown are computed assuming payments are made on December 31.

This revised funding schedule is adopted with the understanding that in the future the Town retains the ability to extend the schedule to the maximum length permitted by law in the event that it finds reason to do so.

Fiscal Year Ending in	Normal Cost	Amortization of 2002 ERI (15 years 4.36%)	Amortization of 2003 ERI (20 years 4.50%)	Other Amortization (20 years 4.50%)	Expense s	Pension Appropriatio n	Beg. of FY Unfunded Actuarial Accrued Liability
2006	408,808	51,288	161,858	1,273,190	121,196	2,016,340	20,740,436
2007	422,936	53,524	169,142	1,330,484	126,953	2,103,039	20,903,875
2008	437,936	55,858	176,753	1,390,356	132,983	2,193,886	21,011,227
2009	453,609	58,293	184,707	1,452,922	139,300	2,288,831	21,054,739
2010	469,686	60,835	193,019	1,518,303	145,917	2,387,760	21,025,876
2011	486,441	63,487	201,705	1,586,627	152,848	2,491,108	20,915,252
2012	499,926	66,255	210,782	1,658,025	160,108	2,595,096	20,712,554
2013	511,617	69,144	220,267	1,732,636	167,713	2,701,377	20,406,456
2014	522,654	72,159	230,179	1,810,605	175,679	2,811,276	19,984,532
2015	532,947	75,305	240,537	1,892,082	184,024	2,924,895	19,433,154
2016	543,021	78,588	251,361	1,977,226	192,765	3,042,961	18,737,388
2017	553,720	82,014	262,672	2,066,201	201,921	3,166,528	17,880,877
2018	563,111	85,590	274,492	2,159,180	211,512	3,293,885	16,845,713
2019	572,955	89,322	286,844	2,256,343	221,559	3,427,023	15,612,303
2020	582,058	93,216	299,752	2,357,878	232,083	3,564,987	14,159,218
2021	591,511	0	313,241	2,463,983	243,107	3,611,842	12,463,035
2022	602,017	0	327,337	2,574,862	254,655	3,758,871	10,599,451
2023	612,576	0	342,067	2,690,731	266,751	3,912,125	8,451,991
2024	624,414	0	357,460	2,811,814	279,422	4,073,110	5,991,379
2025	637,319	0	373,546	2,938,346	292,695	4,241,906	3,185,661
2026	650,503	0	0	0	306,598	957,101	0

Exhibit II - Continued

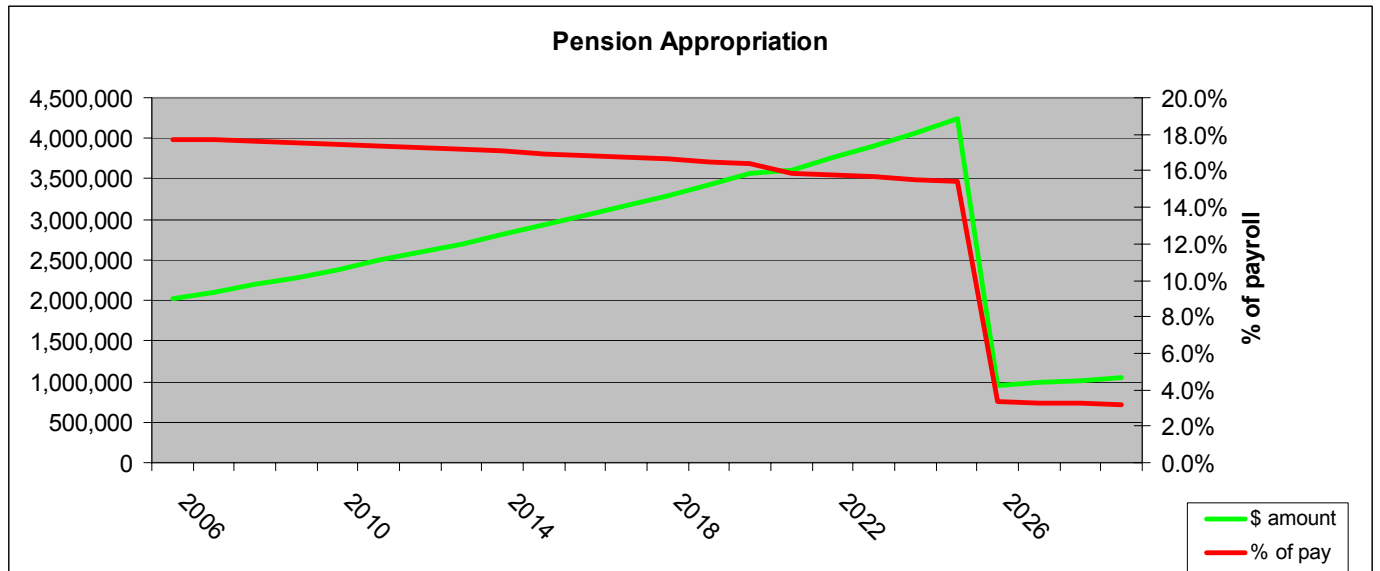


Exhibit III

Actuarial Gain (Loss) Since the Prior Actuarial Valuation

The actuarial gain or loss represents the effect of deviations from the actuarial assumptions since the prior actuarial valuation. *Gains* result in reduced plan costs; *losses* result in increased costs. We measure the gain or loss by comparing the expected and actual Unfunded Actuarial Accrued Liability.

A. Expected Unfunded Actuarial Accrued Liability

1. a. Unfunded Actuarial Accrued Liability, January 1, 2002	\$15,542,957
b. 2002 Employer Normal Cost	410,186
c. 2002 Appropriation	(1,697,495)
d. Interest to end of year	1,316,134
e. Change due to Early Retirement Incentive Program	560,752
2. a. Expected UAAL, January 1, 2003	16,132,534
b. 2003 Employer Normal Cost	421,750
c. 2003 Appropriation	(1,813,285)
d. Interest on a. and b. to end of year	1,365,728
e. Change due to Early Retirement Incentive Program	2,017,370
3. Expected UAAL, January 1, 2004	18,124,097
B. Actual Unfunded Actuarial Accrued Liability (Exhibit I, item C.3)	19,670,233
C. Actuarial Gain (Loss) as of January 1, 2004 (A.3 - B)	\$(1,546,136)

Exhibit IV

Valuation Assets

A. As shown in Annual Statement, by Investment Type, as of December 31, 2003

Cash	\$ 1,280,039
Pooled Domestic Equity Funds	14,201,184
Pooled International Equity Funds	2,573,689
Pooled Domestic Fixed Income Funds	8,109,410
Pooled Real Estate	1,506,224
Accounts Receivable	80,575
Accounts Payable	<u>(15,861)</u>
Total	\$ 27,735,259

B. Asset Breakdown by Fund, as of December 31, 2003

1. Annuity Savings Fund	\$ 8,086,952
2. Annuity Reserve Fund	3,783,719
3. Military Service Fund	0
4. Pension Fund	2,182,745
5. Expense Fund	0
6. Pension Reserve Fund	<u>13,681,842</u>
	\$ 27,735,259

Due to rounding, numbers may not add up exactly.

Exhibit IV - Continued

Valuation Assets

C. Reconciliation of assets

Year ending December 31 st		<u>2002</u>	<u>2003</u>
1.	Beginning of year	\$25,271,096	\$23,420,773
2.	Receipts		
	Appropriation	1,697,495	1,813,285
	Member contributions	943,577	971,720
	Payments from other systems	165,408	139,316
	Payments from Federal Government	15,284	17,063
	Payments from Commonwealth	<u>144,899</u>	<u>99,847</u>
	Total	2,966,664	3,041,231
3.	Disbursements		
	Payments to Retirees and other Members	2,341,659	2,777,000
	Payments to other systems	141,620	125,718
	Expenses	<u>99,037</u>	<u>98,757</u>
	Total	2,582,316	3,001,476
4.	Net investment income	(2,234,670)	4,274,730
5.	End of year	\$23,420,773	\$27,735,259

Due to rounding, numbers may not add up exactly.

Exhibit V

Information on System Membership

Active Members

ANNUAL EARNINGS BY AGE AND SERVICE GROUPS													VALUATION DATE 1/ 1/04
SERVICE	0-1	2	3-4	5-6	7-9	10-14	15-19	20-24	25-29	30-34	35-40	OVER	TOTALS
AGE													
0-19	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0
20-24	7	0	0	0	0	0	0	0	0	0	0	0	7
	83411	0	0	0	0	0	0	0	0	0	0	0	83411
	11916	0	0	0	0	0	0	0	0	0	0	0	11916
25-29	5	2	5	4	0	0	0	0	0	0	0	0	16
	108433	82485	159219	163831	0	0	0	0	0	0	0	0	513968
	21687	41243	31844	40958	0	0	0	0	0	0	0	0	32123
30-34	8	4	10	6	6	5	0	0	0	0	0	0	39
	206064	131041	405694	275110	217840	210786	0	0	0	0	0	0	1446534
	25758	32760	40569	45852	36307	42157	0	0	0	0	0	0	37091
35-39	6	2	7	4	6	2	9	1	0	0	0	0	37
	133924	21439	267915	132374	217155	53761	381244	41187	0	0	0	0	1249000
	22321	10720	38274	33094	36193	26880	42360	41187	0	0	0	0	33757
40-44	4	5	8	4	14	2	9	3	1	0	0	0	50
	44353	93348	162128	121172	440676	80747	445998	162213	63305	0	0	0	1613941
	11088	18670	20266	30293	31477	40374	49555	54071	63305	0	0	0	32279
45-49	7	4	9	8	7	13	8	7	9	1	0	0	73
	114947	100086	184525	223164	159968	405418	344750	458364	464547	45776	0	0	2501546
	16421	25021	20503	27896	22853	31186	43094	65481	51616	45776	0	0	34268
50-54	4	1	5	4	8	6	11	4	3	5	0	0	51
	28206	64709	113466	132303	245908	179352	407188	185430	241666	247179	0	0	1845409
	7052	64709	22693	33076	30738	29892	37017	46358	80555	49436	0	0	36184
55-59	3	0	4	4	1	6	4	0	1	1	0	0	24
	47897	0	75890	87055	29911	215158	104752	0	40878	44982	0	0	646524
	15966	0	18973	21764	29911	35860	26188	0	40878	44982	0	0	26938
60-64	1	2	0	0	2	1	0	0	0	0	0	0	6
	550	25527	0	0	58717	13183	0	0	0	0	0	0	97977
	550	12764	0	0	29358	13183	0	0	0	0	0	0	16329
65+	0	1	0	0	1	1	1	0	0	0	0	0	4
	0	12401	0	0	22161	12778	12838	0	0	0	0	0	60177
	0	12401	0	0	22161	12778	12838	0	0	0	0	0	15044
TOTAL	45	21	48	34	45	36	42	15	14	7	0	0	307
	767785	531036	1368838	1135009	1392335	1171183	1696770	847195	810397	337937	0	0	010058485
	17062	25287	28517	33383	30941	32533	40399	56480	57885	48277	0	0	32764

The first figure in each group is the number of members in that group. The second figure is their annual pay. The third is their average annual pay. The data is classified by attained age and completed years of service. Earnings shown are the reported 2003 pensionable earnings, which were subsequently adjusted for valuation purposes by annualizing for new hires and brought forward by one year's expected salary increase.

Average Age: 44.2
Average Service: 9.6
Average Valuation Salary: 34,526
Average Annuity Savings Fund Balance: 23,588

Exhibit V (continued)

Information on System Membership

Terminated Members

	<u>Number</u>	<u>Annuity Savings Fund Balance</u>	<u>Estimated Benefit at Retirement</u>
		<u>Total</u> <u>Average</u>	<u>Total</u> <u>Average</u>
Vested	16	560,400 35,025	470,098 29,381
Non-vested	79	295,358 3,739	n/a n/a
Total	95	855,758 9,008	470,098 29,381

Members in Pay Status

	<u>Super-annuation</u>	<u>Accidental Disability</u>	<u>Ordinary Disability</u>	<u>Survivors and Beneficiaries</u>	<u>Total</u>
Number	198	12	4	16	230
Average Age	71.2	64.0	60.8	75.3	70.9
Average Benefit	13,679	26,564	8,620	4,876	13,651
Annuity	378,105	25,438	5,243	8,812	417,598
Pension from System	2,154,129	270,870	19,715	56,347	2,501,061
Pension from Other Systems	85,529	12,616	5,839	587	104,571
COLA from Commonwealth	90,653	9,840	3,684	12,266	116,441
Total	2,708,416	318,763	34,481	78,010	3,139,670

Distribution of Benefit by Age

<u>Present Age</u>	<u>Number</u>	<u>Total Benefit</u>	<u>Average Benefit</u>
less than 45	0	0	
45-49	5	74,699	14,940
50-54	16	445,191	27,824
55-59	17	419,230	24,661
60-64	35	594,972	16,999
65-69	35	463,185	13,234
70-74	30	386,099	12,870
75-79	38	370,197	9,742
80-84	33	247,797	7,509
85-89	13	85,858	6,604
90 and older	8	52,445	6,556
Total	230	3,139,670	13,651

Due to rounding, numbers may not add up exactly.

Exhibit VI

GASB Statement No. 25 Required Schedules

Paragraphs 37 and 38 of the Statement require two schedules of historical information, covering six years. This exhibit provides the information that is currently available, with estimated values in years where actuarial valuations were not performed.

A. Schedule of Funding Progress

	01/01/2004	01/01/2003	01/01/2002	01/01/2001	01/01/2000	01/01/1999
1. Actuarial Valuation Date	01/01/2004	01/01/2003	01/01/2002	01/01/2001	01/01/2000	01/01/1999
2. Actuarial Value of Plan Assets	27,735,259	23,420,773	25,271,096	26,423,203	26,456,262	22,632,257
3. Actuarial Accrued Liability	47,405,492	43,172,723 *	40,814,053	33,559,596 *	32,666,646 *	31,623,381
4. Unfunded Actuarial Accrued Liability (UAAL)	19,670,233	19,751,950	15,542,957	7,136,393	6,210,385	8,991,124
5. Funded Ratio	59%	54%	62%	79%	81%	72%
6. Annual Covered Payroll	10,572,920	10,873,793 *	10,380,709	10,111,418 *	9,584,283 *	9,084,628
7. Ratio of UAAL to Covered Payroll	186%	182%	150%	71%	65%	99%

B. Schedule of Employer Contributions

	06/30/2005	06/30/2004	06/30/2003	06/30/2002	06/30/2001	06/30/2000
1. Fiscal Year Ending	06/30/2005	06/30/2004	06/30/2003	06/30/2002	06/30/2001	06/30/2000
2. Actuarially Required Contribution	1,960,887	1,813,285	1,697,495	1,497,495	1,422,305	1,350,776
3. Contribution Made	n/a	1,813,285	1,697,495	1,497,495	1,441,554	1,331,528
4. Ratio	n/a	100%	100%	100%	101%	99%

Items marked with an asterisk (*) are estimated values.

Exhibit VII

Summary of Plan Provisions

Employee Contributions

Rate: 5%, 7%, 8% or 9%, depending on hire date (1/1/75, 1/1/84, 7/1/96 cutoffs).

Since the \$30,000 cap on Compensation was repealed by the System, members who joined after January 1, 1979 are required to make extra contributions equal to 2% of compensation in excess of \$30,000.

Retirement

Eligibility: Earlier of 20 years of service or age 55. If hired after January 1, 1978, the member must have at least 10 years of service to retire, even if over 55.

Benefit: Benefit Rate x Creditable Service x Average Annual Pay.
Maximum benefit is 80% of Average Annual Pay
Benefit rate is 2.5%, grading down by .1% per year less than age 65 (group 1) or age 55 (group 4).
Average Annual Pay is based on the highest 3 consecutive years.
Veterans get extra annual benefit equal to \$15 x years of service up to 20.

Vesting

Eligibility: 10 years

Benefit: Retirement Benefit with Benefit Rate based on age the member begins to receive benefits.

Disability - Ordinary

Eligibility: Non Veterans: 10 years (local option)
Veterans: 10 years

Benefit: Benefit Rate x Creditable Service x Average Annual Pay
Maximum is 80% of Average Annual Pay
Pay is capped in same manner as for Retirement Benefit
For *members under age 55*, Benefit Rate for age 55 is used.
For *veterans*, minimum benefit is the sum of the annuity purchasable by accumulated employee contributions, plus 50% of prior year's pay.

Exhibit VII (continued)

Disability - Accidental (Job Related)

Eligibility: Immediate

Benefit: Sum of annuity purchasable by accumulated employee contributions, plus pension equal to 72% of rate of pay.

Death - Ordinary

Eligibility: 2 years

Benefit: $\text{Benefit Rate} \times \text{Creditable Service} \times \text{Average Annual Pay} \times \text{Option C reduction} \times \frac{2}{3}$
Benefit is payable for *life of the spouse*
For members *under age 55*, Benefit Rate for age 55 is used.
Minimum Benefit = \$3,000 per year

Death - Accidental (Job Related)

Eligibility: Immediate

Benefit: Sum of annuity purchasable by accumulated employee contributions, plus pension equal to 72% of rate of pay.

Veterans' Buy Back

Veterans who become vested may purchase up to 4 years of credit for combat duty in the military within 180 days following the date that they vest under the System. Payment of 10% of the compensation at the time the member joined the System must be made for each year to be credited.

Cost of Living Adjustment

Each year, the Legislature may choose to grant a cost of living adjustment to the first \$12,000 of benefit. If the System is sponsored by a municipality, adjustments after 1981 were paid for by the Commonwealth via the State Retirement System.

Beginning in 1998, adjustments will no longer be paid by the Commonwealth. The system has elected to accept provisions which make it responsible to pay (and fund for) future cost of living adjustments.

Exhibit VIII

Actuarial Cost Method, Assumptions and Techniques

Actuarial Cost Method

This valuation was done using the Entry Age Normal Actuarial Cost Method. Under this method, a level Normal Cost rate is developed for each individual to fund all expected benefits over the participant's career. The Normal Cost is the portion of the present value of expected benefits which the method allocates to the current year. The Actuarial Accrued Liability is the portion of the value of benefits which is allocated to past years and is equal to the hypothetical accumulation of past Normal Costs. The Actuarial Accrued Liability for non-active participants or those assumed to retire on the valuation date is equal to their total present value of benefit.

The excess of the Actuarial Accrued Liability over assets in the plan is called the Unfunded Actuarial Accrued Liability (UAAL), which is amortized over a period of time which depends on the type of funding schedule adopted.

The total cost for a year is equal to the Normal Cost, less expected employee contributions for the year, plus the amortization payment toward the Unfunded Actuarial Accrued Liability and an allowance for anticipated administrative expenses.

Differences between the actual experience of the Plan and the experience projected by the actuarial assumptions result in changes in the Unfunded Actuarial Accrued Liability. An increase results in an Actuarial Loss, and a decrease is called an Actuarial Gain. These amounts are amortized over a period which depends on the funding schedule adopted.

Summary of Actuarial Assumptions

Economic Assumptions

1. Investment Return: 8.25%

2. Salary increases:

<u>Service</u>	<u>Group 1</u>	<u>Group 4</u>	<u>Service</u>	<u>Group 1</u>	<u>Group 4</u>
0	7.00%	8.00%	5	5.50%	6.00%
1	6.50%	7.50%	6	5.50%	5.50%
2	6.50%	7.00%	7	5.00%	5.50%
3	6.00%	6.50%	8	5.00%	5.25%
4	6.00%	6.00%	9	4.75%	5.25%
			10+	4.75%	5.25%

3. Interest on Employee Contribution Accumulations: 5.50%

Exhibit VIII (continued)

Demographic Assumptions

1. Mortality Other Than Disabled (pre and post retirement):

RP2000 Table. "Employee" rates pre-retirement and "Annuitant" rates post-retirement.

2. Disabled Mortality (pre and post retirement):

RP2000 Annuitant rates, set forward two years.

3. Termination rates (sample) :

<u>Service</u>	<u>Group 1</u>	<u>Group 4</u>
0	0.150	0.015
10	0.054	0.015
20	0.021	0.000
30	0.000	0.000

4. Disablement rates (sample):

<u>Age</u>	<u>Group 1</u>	<u>Group 4</u>
20	.0001	.0010
30	.0003	.0030
40	.0010	.0030
50	.0019	.0125
60	.0028	.0085

Exhibit VIII (continued)

5. Retirement rates:

<u>Age</u>	<u>Group 1</u> <u>Male</u>	<u>Group 1</u> <u>Female</u>	<u>Group 4</u>
45-49	0.000	0.000	0.010
50	0.010	0.015	0.020
51	0.010	0.015	0.020
52	0.010	0.020	0.020
53	0.010	0.025	0.050
54	0.020	0.025	0.075
55	0.020	0.055	0.150
56	0.025	0.065	0.100
57	0.025	0.065	0.100
58	0.050	0.065	0.100
59	0.065	0.065	0.150
60	0.120	0.050	0.200
61	0.200	0.130	0.200
62	0.300	0.150	0.250
63	0.250	0.125	0.250
64	0.220	0.180	0.300
65	0.400	0.150	1.000
66	0.250	0.200	1.000
67	0.250	0.200	1.000
68	0.300	0.250	1.000
69	0.300	0.200	1.000
70	1.000	1.000	1.000

6. Age that Deferred Vested Benefits commence: 65
7. Percentage Married: 100% of males, 100% of females, female spouses three years younger than male spouses.
8. Assumptions for children, remarriages: none
9. Percentage of deaths and disabilities assumed occupational:
Group 1: 50%, Group 4: 90%
10. Expenses: An allocation for estimated expenses is added to the Pension Appropriation.
11. Cost of Living: Cost of living increases granted prior to July 1, 1981 and after July 1, 1997 are included in the calculations. Cost of living adjustments from 1981 through 1997 are assumed to be paid by the Commonwealth. It is assumed that each year there will be an adjustment of 3%, borne by the system.

Exhibit VIII (continued)

Actuarial Procedures and Techniques

Employee Data

Employee data used was derived from computer files provided by the Town, supplemented by verbal clarification of questions. Data was examined for completeness and consistency.

No information was available on transfers to other systems who have not yet retired. It is implicitly assumed that the liability of this system is offset by other systems' liability for employees who have transferred to this system.

Asset Data

Assets were reported as of December 31, 2003.

Adjustment and Projection of Liability Results

Liability calculations (present values, accrued liabilities, normal costs) were made as of January 1, 2004, the census date.

Total Normal Cost was increased by the assumed salary increment each year. Employee contributions were estimated using the projected amounts for current participants combined with 9% of the additional payroll imputed to new participants (based on the assumption that total payroll would increase according to the salary increase assumption).

All January 1 results were increased by one year's interest to bring them forward to December 31, the date that contributions are assumed to be made.

Exhibit IX

Glossary Of Terms

Actuarial Accrued Liability -- That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions -- In order to fund a plan with reasonably level contributions, one must anticipate the plan's future experience. The actuary does this with a combination of actuarial assumptions, which represent his or her best estimate of future experience. Assumptions for pension plans include estimates of asset appreciation, member turnover, salary increases, pre-retirement mortality, and the cost of an annuity at retirement. The combination of assumptions is intended to reasonably represent a plan's future financial experience over the long term.

Actuarial Cost Method (or Funding Method) -- A procedure for allocating the Actuarial Present Value of all expected pension plan benefits between past and future time periods. This is done via calculation of the Normal Cost and the Actuarial Accrued Liability. Over the years, actuaries have developed various approaches for the systematic accumulation of assets sufficient to provide plan benefits. These approaches or cost methods differ in many respects: some spread costs over an average working lifetime of a group, others spread an individual's cost over that individual's working lifetime; some accumulate assets quickly, others take longer to accumulate sizable assets. The choice of a cost method depends on such factors as the size of the plan and the type of benefit promised.

Entry Age Normal Actuarial Cost Method - Spreads cost for each individual as level percentage of pay. Required under MGL Chapter 32 to develop a Funding Schedule amount.

Actuarial Gain or Loss (or Experience Gain or Loss) -- A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. Differences due to changes in the Actuarial Assumptions, the Actuarial Cost Method or pension plan provisions would be described as such, rather than as an Actuarial Gain(Loss).

Exhibit IX - Continued

Actuarial Present Value of Benefits -- The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan, taking into account appropriate discounts for the time value of money and the probability that the benefits will be paid.

Actuarial Valuation -- An estimation of the present value of future benefits expected to be provided by a Retirement System, and the allocation of this value between past and future periods. The current year's funding requirement is determined, based on data on existing employees and pensioners in the System, using Actuarial Assumptions and an Actuarial Cost Method, as well as a procedure to determine the amortization payment to be used in the funding schedule.

Amortization Payment -- That portion of the pension plan appropriation which represents payments made to pay interest on and to reduce the Unfunded Actuarial Accrued Liability. Payments can either be "Level" (fixed amount each year), or "Increasing" (amount calculated on the basis that it will increase each year at 4.5%).

Annual Statement -- The statement submitted to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Savings Fund -- The fund in which employee contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

Annuity Reserve Fund -- The fund into which total accumulated deductions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Assets -- The total value of the Annuity Savings Fund, Annuity Reserve Fund, Military Service Credit Fund, Pension Fund and Pension Reserve Fund held on behalf of the Retirement System. For valuation purposes, the Expense Fund is not considered an asset.

Cost of Benefits -- The estimated payment from the pension system for benefits for the fiscal year. This is the minimum amount payable during the first six years of a Funding Schedule under Sections 22(6A) and 22D of MGL Chapter 32.

Expense Fund -- The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Exhibit IX - Continued

Funding Schedule -- The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22 6A of MGL Chapter 32.

GASB -- Governmental Accounting Standards Board

Normal Cost -- Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is allocated to a particular fiscal year. The Employer Normal Cost is the difference between the total Normal Cost and the amount of the expected employee contributions for the fiscal year.

Pension Fund -- The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund -- The fund which is credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts include excess interest earnings.

PERAC -- The Commonwealth of Massachusetts Public Employee Retirement Administration Commission, which oversees all the contributory retirement systems established under MGL Chapter 32.

Salary Cap -- The \$30,000 limit on compensation considered by the System for benefit purposes for members hired after 1978, unless the System has elected to remove this cap.

Unfunded Actuarial Accrued Liability -- The excess of the Actuarial Accrued Liability over the Assets.

Appendix

Quick Reference Summary

	<u>2004 Valuation</u>	<u>2002 Valuation</u>
Number of Participants (Exh. V)		
Active	307	325
Retired	214	185
Disabled	16	16
Terminated Vested	16	19
Terminated Non-vested	<u>79</u>	<u>102</u>
Total	632	647
Active Members		
Average Age	44.2	44.1
Average Service	9.6	9.9
Reported Payroll (all members)	\$10,058,485	\$ 9,923,595
Valuation Payroll (all members)	10,599,575	10,445,149
(members below retirement age)	\$10,572,920	\$10,380,709
Average Salary (all members)	34,526	32,139
Retired and Disabled Members		
Average age	70.9	72.1
Average Benefit	\$ 13,651	\$ 11,060
Employer Normal Cost (Exh. I)		
Dollar Amount	\$ 365,554	\$ 340,902
Percentage of Total Pay	3.4%	3.3%
Actuarial Accrued Liability (Exh. I)		
Active Members	\$19,408,792	\$20,192,935
Retirees	23,578,278	15,978,356
Disabled Members	3,022,854	3,729,808
Terminated Vested	1,100,210	641,088
Terminated Not Vested	<u>295,358</u>	<u>271,866</u>
Total	\$47,405,492	\$40,814,053
Valuation Assets (Exh. IV)	\$27,735,259	\$25,271,096
Unfunded Actuarial Accrued Liability (Exh. I)	\$19,670,233	\$15,542,957
Funded Percentage	58.5%	61.9%
FY2006 Pension Appropriation (Exh. I)		
Dollar Amount	\$ 2,016,339	\$ 1,907,484
Projected Payroll for that FY	11,363,693	12,287,223
Percentage of Total Projected Pay for next FY	17.7%	15.5%